Nov. 3, 1942. M. MARGOLIN 2,300,681

RESILIENT INSERT

Filed Jan. 12, 1942 2 Sheets-Sheet 1

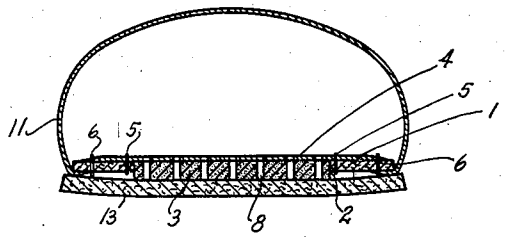


Fig. 1

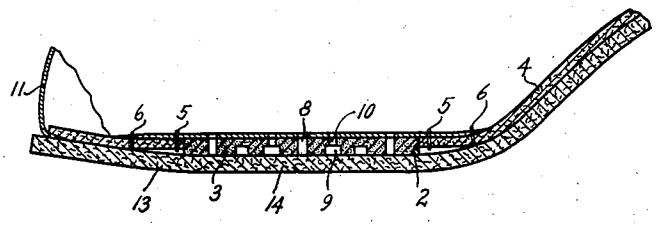


Fig. 2

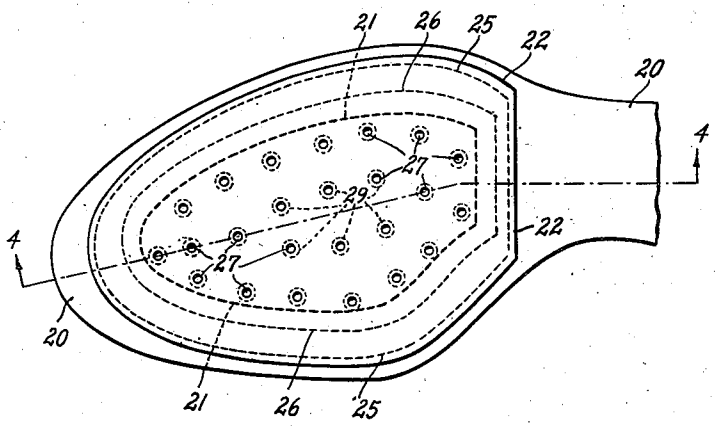


Fig. 3

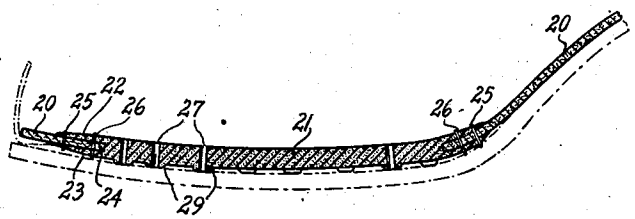


Fig. 4

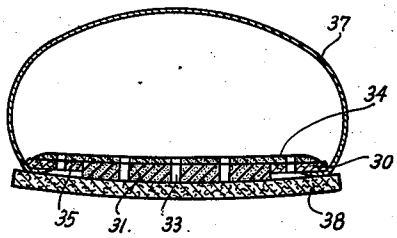
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Filed Jan. 12, 1942 2 Sheets-Sheet 2

Fig. 5



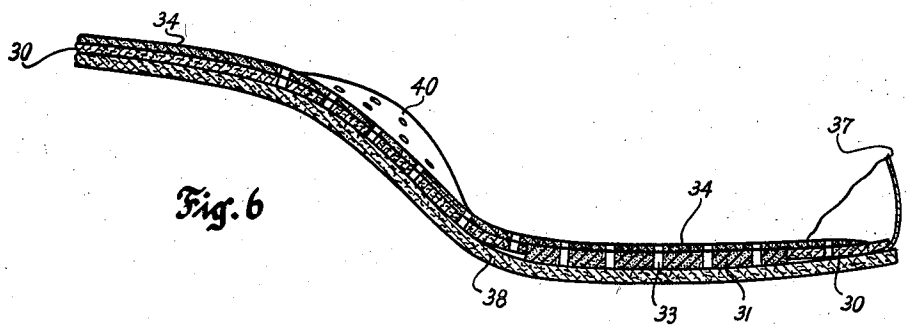


Fig. 6

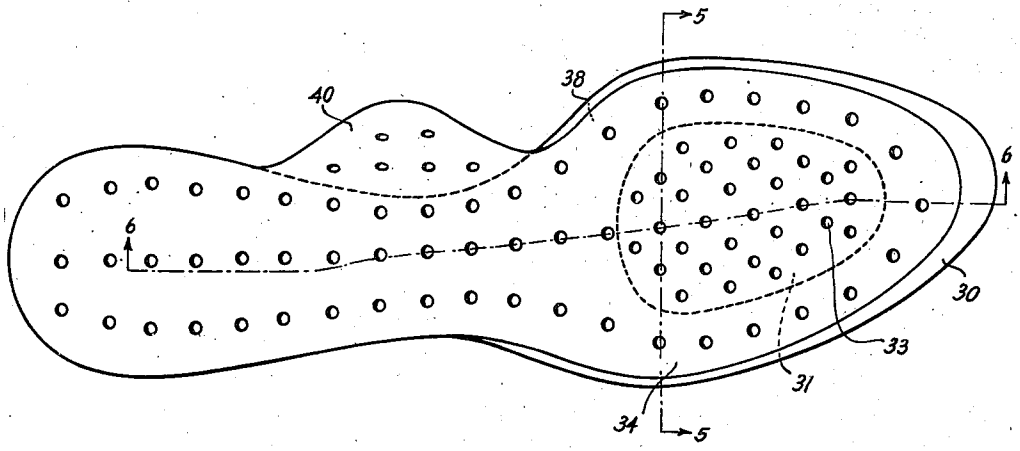


Fig. 7

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UNITED STATES PATENT OFFICE

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RESILIENT INSERT

Meyer Margolin, Elgin, Ill.

Application January 12, 1942, Serial No. 426,401

4 Claims. (Cl. 36—3)

My invention relates to an inner sole having an improved rubber insert in combination with an outsole and upper. My invention more particularly relates to a rubber or rubber-like insert disposed in an opening formed in the forepart of an insole, the insert being of substantially greater thickness than the insole and extending down below the level of the insole.

This application is in part a continuation of my application Serial No. 257,351, filed February 20, 1939.

It is the object of the present invention to render more flexible and resilient the insole of a shoe.

It is a further object of my present invention to improve the breathing properties of a shoe construction.

It is a further object of my invention to provide a resilient ball cushion support for the foot and a round shoe bottom effect.

It is a further object of my invention to provide a novel insert disposed in an opening in the forepart of an insole, the insert being securely held in place in an insole.

These and further objects of my present invention will become apparent from a consideration of the drawings and the description thereof which here follows:

Figure 1 is a cross-section of the forepart of a shoe taken across the shoe showing the combination of insole, insert and outsole of my invention.

Figure 2 is a cross-section showing my invention as set forth in Figure 1, the cross section being however a longitudinal cross section of the forepart of the shoe.

Figure 3 is a top plan view of a modified form of my invention in which a double lapped rubber insert is employed.

Figure 4 is a cross-section taken along the line 4—4 of Figure 3.

Figure 5 is a cross section taken across the shoe of a modified form of my invention.

Figure 6 is a central cross section of the modified form of my invention shown in Figure 5.

Figure 7 is a plan view looking down upon the cover sheet of the combination of my invention.

Referring now more specifically to the drawings, I show in Figure 1 a cross section of the shoe construction in which an insole 1 is provided with an opening 2 in which is disposed an insert 3 secured to a cover sheet 4. The insert 3 and the cover sheet 4 can either be separate parts adhesively secured together or they may be formed integrally from one piece. The insert 3 extends down below the plane of the insole 1 and the insert 3 may be secured in place in the opening in the forepart of the insole 1 by means of stitching 5 and 6 or by some suitable adhesive. Perforations 8 run through the insert 3. If desired, grooves 9 may run transversely across the bottom of the insert 3 and these grooves may be connected with the interior of the shoe by perforations 10. An upper 11 is lasted to the insole 1 and an outsole 12 is secured to the insole so that the lower extending portion of the insert 3 presses downwardly against the outsole 12 and gives a rounded shoe bottom effect in that area 14.

It will be noted that there is a slight clearance between the insole 1 and the outsole 2 that is caused both by the extension of the upper therebetween and also because of the fact that the insert 3 extends down below the level of the insole 1 and therefore separates the insole 1 from the outsole 12.

It is a feature of the present invention that the insert 3 has additional thickness that extends substantially below the lower plane of the insole 1 so that under pressure of the foot, softness and resilience are provided without the perforations 8 being closed at the upper end thereof. This is because the pressure is exerted through the additional thickness on the bottom of the insert and hence this causes an upward pressure to be exerted by the outsole 12 upon the insert 3. This action opens the perforations toward the foot, increasing the breathing and foot comfort. The thick insert maintains the foot in its correct position with a ball cushion support therebeneath, because the insert shapes itself to the sole of the foot. This is in addition to providing a desirable round bottom contour of the shoe.

The extension of the insert 3 below the plane of the insole 1 is sufficient so that the clearance between the insole 1 and the outsole 12 about the marginal portion of the opening 2 in the forepart of the insole 1 is such as to give additional spring and resilience to the shoe construction.

The insert 3 is of rubber, sponge rubber or some suitable resilient material and this includes a fibrous material of such form as to give the properties of resilience.

The cover sheet 4 can cover only the forepart of the insole or it may extend back to the heel area and it may include integrally formed therewith an arch support such as a cookie.

The insert 3 is as shown secured to the insole 1 through the cover sheet 4 to which it is attached. Because the insert extends down below the plane of the insole and therefore suspends the insole at a slight distance from the outsole in the center

portion of the forepart of the insole, there is a floating effect or increased spring obtained.

Additionally, compression in walking of this air cell provides increased breathing effects. The fact that the thickness of the insert extends below the insole instead of above, is of importance because it has been found that a much better air flow is obtained thereby, the compression of the rubber being such that the perforations open rather than close during the flexing action of the insert.

Referring now to Figures 3 and 4, I show the inner sole 20 carrying the flexible rubber insert 21 which has two laps 22 and 23 which extend over the edge 24 of the inner sole. By means of the two rows of stitching 25 and 26 the insert 21 is firmly and permanently secured against buckling or wrinkling to the inner sole 20 through the laps 22 and 23. As above explained, the laps 22 and 23 taper down to a feather edge to fit smoothly over the inner sole. The insert 21 has ventilation perforations 27 which at their lower edge are reinforced against closing by the bosses 29.

It will be noted that the insert 21 is substantially thicker than the insole 20, but in the insert 21 the insert is provided with a tapered edge 23 at the bottom thereof which tapers down at the lap 23 to a feather edge in contact with the insole 28 and thus the spacing or air cell effect shown in Figures 1 and 2 is not obtained in this modification. However, I do obtain a round bottom shoe effect and the properties of increased resilience and breathing.

In this form of the invention in which a double lap is secured to the insole with the insole being held between the two laps by means of stitching I obtain a very firm and permanently secured composite insole-insert combination. That is, the insert is firmly held against any loosening or dislocation because of its firm grip both by the engagement of the insole and by reason of the stitching therethrough.

In Figure 5 I show a modified form of my invention similar in many respects to the form shown in Figure 1, except that I do not employ the grooves on the bottom of the insert shown in that figure. Specifically an insole 30 in which is disposed an insert 31 having perforations 33 extending therethrough is shown. The insert 31 is of substantially greater thickness than insole 30 and extends down below the level of that insole. The upper portion of the insert 31 is secured to a cover sheet or layer 34 by adhesion or any other suitable means for affixing the insert to the cover sheet 34.

The cover sheet is secured at 35 to the upper marginal portion of the insole 30 so as to hold the insert 31 properly in position in the opening in the forepart of the insole in which that insert is disposed. An upper 37 is lasted between the insole 30 and the outsole 38.

It will be noted from an examination of Figure 6 that the cover sheet 34 extends rearwardly and this cover sheet 34 may extend to include the arch and heel area.

As shown particularly in Figure 7, the cover sheet 34 may have integrally formed therewith a cookie 40.

The form of my invention here shown is particularly desirable and economical because I provide increased softness, resilience and foot comfort and additionally I obtain a ball cushion support for the bottom of the foot and a round bottom shoe effect.

These advantages are due to the fact that the insert 31 is so positioned in the insole 30 so that it projects down below the insole and into contact with the outsole 38.

By reason of the slight spacing of the insole 30 from the outsole 38 and because of the placement of the resilient insert so as to resiliently space these two members I obtain a resilience and spring previously unobtainable.

Further, because the insert 31 projects down below the insole under walking conditions pressure is exerted upwardly through the insert 31, thus causing the perforations therethrough to open rather than close and also causing the insert to properly form itself to the foot. The advantages of this type of construction from a structural standpoint are set forth hereinabove.

The present form of my invention also provides certain economies in manufacture. For example I may cut both the cover sheet and the insert from sheet stock, and either before or after joining the cover sheet, perforate through the thickness of both the insert and the cover sheet. This method of dieing out or stamping out inserts from sheet stock in lieu of the previous method of molding them enables me to form such inserts quicker, cheaper and without the necessity for expensive molds hitherto employed.

The sheets stock of course may be rubber or it may be any desirable resilient or rubber-like material.

The cookie for the arch support is integral with the cover sheet and is formed simply by cutting out the cover sheet to proper shape as indicated.

Various other modifications of my invention will suggest themselves to those skilled in the art. I accordingly desire that in construing the breadth of the appended claims that they shall not be limited to the specific details shown and described in connection with the above explanation.

I claim:

1. In combination an outsole and an insole, said insole having an opening in the forepart thereof, a resilient insert positioned in said opening, said insert being secured in position in said opening in said insole by means of a cover layer, said insert being positively attached to said cover layer, perforations extending through said insert and said cover layer, said cover layer extending over and being positively secured to said insole at least at that portion of said insole immediately adjacent said opening in which said insert is disposed by a row of stitching extending through said insole and said cover layer, said row of stitching extending about said opening in said insole, said insert having a thickness substantially greater than said insole, the lower portion of said insert extending below the plane of said insole and resiliently separating said insole from said outsole.

2. In combination, an outsole, an insole, and an upper, said insole having an opening in the forepart thereof, a resilient insert positioned in said opening, said insert being secured in position in said opening in said insole by means of a cover layer which extends over said insole and to which said insert is positively secured, said cover layer being secured to said insole by at least two rows of stitching through said cover layer and said insole, one row of said stitching being located in said insole adjacent to said opening and extending about said opening, said insert having a thickness substantially greater than said insole, said upper being interposed between said insole and said outsole at the periphery of said insole,

the lower portion of said insert extending below the plane of said insole and resiliently separating said insole from said outsole.

3. In combination an outsole and an insole, said insole having an opening in the forepart thereof, a resilient insert positioned in said opening, said insert being secured in position in said opening in said insole by means of a cover layer, said insert being positively attached to said cover layer, perforations extending through said insert and said cover layer, said cover layer extending over and being positively secured to said insole at least at that portion of said insole immediately adjacent said opening in which said insert is disposed by separate attaching means securing said insole to said cover layer, said attaching means extending about said opening in said insole, said insert having a thickness substantially greater than said insole, the lower portion of said insert extending below the plane of said insole and resiliently separating said insole from said outsole.

4. In combination, an outsole, an insole, and an upper, said insole having an opening in the forepart thereof, a resilient insert positioned in said opening, said insert being secured in position in said opening in said insole by means of a cover layer which extends over said insole and to which said insert is positively secured, said cover layer being secured to said insole by separate attaching means securing said cover layer to said insole, said attaching means being located at least in said insole adjacent to said opening and extending about said opening, said insert having a thickness substantially greater than said insole, said upper being interposed between said insole and said outsole at the periphery of said insole, the lower portion of said insert extending below the plane of said insole and resiliently separating said insole from said outsole.

MEYER MARGOLIN.